

AMENDMENTS TO THE CLAIMS

Claims 1 - 10 (cancelled)

Claim 11 (currently amended) A process for preparing a defective metal oxide for a battery cathode with increased capacity, said process comprising:

providing a sufficient amount of metal oxide;

applying a mixture of O₂ and H₂O gas to a sufficient amount of a said metal oxide sample;

heating said metal oxide sample in the presence of said mixture of O₂ and H₂O gas; and

cooling said metal oxide sample, wherein said applying and heating introduce local ionic defects and increase the lithium capacity of said metal oxide.

Claims 12-16 (canceled)

Claim 17 (previously amended): The process as in claim 11, further comprising the step of:

maintaining said heating at a temperature of from about 300 to about 600 °C.

Claim 18 (previously amended): The process as in claim 17, wherein said heating is maintained from about 6 to about 72 hours.

Claim 19 (currently amended): The process as in claim 11, wherein said gas is applied to said metal oxide sample at a linear flow rate of at least about 50 ccm to about 350 ccm.

Claim 20 (previously amended): The process as in claim 11, wherein said heating is from about 2 to about 20 °C/min up to about 460 °C.

Claim 21 (previously presented): The process as in claim 20, further comprising the step of:
maintaining said temperature of about 460 °C for 24 hours.

Claim 22 (previously presented): The process as in claim 11, wherein said cooling is from about 2 to about 20 °C/min until ambient air temperature is achieved.

Claim 23 (previously presented): The process as in claim 11, wherein said metal oxide sample is V_2O_5 .

Claim 24 (previously presented): The process as in claim 11, wherein said metal oxide sample comprises a surface area of about 1- 10 square meters.

Claim 25 (currently amended) A process for preparing a defective metal oxide for a battery cathode with increased capacity, said process comprising:

providing a sufficient amount of metal oxide;

applying a mixture of O₂ and H₂O gas to a sufficient amount of a said metal oxide sample at a linear flow rate of about 50 – 350 ccm;

heating said metal oxide sample at a temperature of from about 300 to about 600 °C for a time period of from about 6 to about 72 hours in the presence of said mixture of O₂ and H₂O gas:
and

cooling said metal oxide sample, wherein said applying and heating introduce local ionic defects and increase the lithium capacity of said metal oxide.